minilec®

INSTALLATION INSTRUCTION PHASE FAILURE RELAYS S2 VMR1 TO S2 VMR4

S2 VMR1

S2 VMR2

S2 VMR3

S2 VMR1 TO S2 VMR3 is operating on IEEE/ NEMA standard method for unbalance detection

It offers protection against -

* Unbalanced voltage condition.
* Phase failure condition.
* Phase sequence reversal condition.
* Under voltage condition.
* Over voltage condition.

S2 VMR1 TO S2 VMR3 are an auxiliary relay and it should be used along with the starter only. The effective working of the unit will depend on efficient working of the starter. Before installing your unit check whether the starter is operating perfectly by starting with the "ON" push button and switching off by "OFF" push button. If the operation of START and STOP are imperfect the starter needs to be serviced. Do not install your unit with faulty starter

CAUTION

1. Ensure that S2 VMR1 TO 3 is -

* Not installed near any heat sources like Burner, sunlight, electric arc etc.
* Not subjected to abnormal vibrations.
* Installed as near to starter as possible.
* Not subjected to direct heat, sunlight, rain, stormy wind and dust. .

2. Working of the products is affected by frequency variations and Harmonic distortion in applications. like Genset Supply or UPS Supply. Care should be taken to ensure that net resultant unbalance Supply is not beyond the unbalance trip limits of unit.

3. If the product is not installed as per guideline given by Minilec, company will not be responsible for any wrong connection, damage, Injury, accident etc.

ELECTRICAL CONNECTION

See Fig. 1 for installation of the unit in the power and control wiring.
Connect L1, L2 , L3 phases at 1, 3 , and 5 as Shown in fig. 1

NOTE

Three phase sensing to the unit & under / over voltage sensing is from L1, L2 ,L3 sensing points at terminals no. 1, 3 and 5.

PROGRAMMING/ SETTING

With the help of push button provided on front, you can Program the relay for suitable operation. Please see sr. No. 18 below for the details.
Refer table 1.
Other parameters can be set by respective knob.

Sr. No.	PARAMETERS	S2 VMR1	S2 VMR2	S2 VMR3
1.	**System supply voltage**	Model #1: 380-415-440 vac ± 20 % Model #2: 220-230-240 vac ± 20 % Model #3: 100-110-120 vac ± 20 % 3phase-3 wire	Model #1: 380-415-440 vac ± 20 % Model #2: 220-230-240 vac ± 20 % Model #3: 100-110-120 vac ± 20 % 3phase, 3 wire. System supply is Selectable by front knob.	Model #1: 380-415-440 vac ± 20 % Model #2: 220-230-240 vac ± 20 % Model #3: 100-110-120 vac ± 20 % 3phase, 3 wire
2.	**Aux. Supply**	In - Built from three phase	In - Built from three phase	In - Built from three phase
3.	**Frequency**	48 to 63 hz.	48 to 63 hz.	48 to 63 hz.
4.	**Output relay contacts**	2CO.	2CO.	2CO.
5.	**Output contact rating**	5 Amp, 240VAC [resistive]	5 Amp, 240V+AC[resistive]	5 Amp, 240VAC [resistive]
6.	**Unbalance trip setting**	4 % to 20 %, ± 5 % of full scale	10% fixed ±10%	2 % to 20 % [±5%]
7.	**Under voltage trip setting**	NA	75% of system supply, ± 2 % for model #1 & # 2, ± 3 % for model # 3	285-425 VAC for model1#,±2% 165-225 VAC for model2#,±2% 75-115 VAC for model3#,±3%
8.	**Over voltage trip setting**	NA	120 % of system supply, ± 2 % of set value for model #1 & # 2, ± 3 % for model # 3	400-520 VAC for model1#,±2% 230-290 VAC for model2#,±2% 105-145 VAC for model3#,±3%
9.	**Power on delay**	NA	NA.	NA.
10.	**Trip time delay for**	For UB/ SP-4 sec,±1 sec & for RP-Instant	For UB/ SP/ UV-2 -5 sec for RP/ OV-Instant	UB/ SP/ UV/ OV=1-10 sec, ± 5% of full scale RP= Instant
11.	**Resetting**	Auto/ Manual reset	Auto reset	Auto/ Manual reset
12.	**Reset gap for unbalance & for UV & OV**	For UNBALANCE = 20 %, ± 5 %	For UB = 20 % , ± 5 % For UV/OV = 3 %, ± 1 %	For UB = 20 %, ± 5 % For UV/OV = 3 %, ± 1 %
13.	**Indications** **Led1 (Green)** **Led2 (Red)** **Led3 (Red)**	ON UB/ RP, steady for SP/UB flashing for RP NA	ON UB/ RP, steady for SP/UB flashing for RP UV/OV ,steady for UV flashing for OV	ON UB/ RP, steady for SP/UB flashing for RP UV/OV ,steady for UV flashing for OV
14.	**Enclosure**	S2 SERIES, ABS,PC-ABS	S2 SERIES, ABS,PC-ABS	S2 SERIES, ABS,PC-ABS
15.	**Dimensions (mm)**	Overall (LXWXD) = 90 x 35 x 60 Mounting = Rail Mounting	Overall (LXWXD) = 90 x 35 x 60 Mounting = Rail Mounting	Overall (LXWXD) = 90 x 35 x 60 Mounting = Rail Mounting
16.	**Weight (appro.)**	100 gms.	100 gms.	150 gms.
17.	**Operating conditions**	Temperature = -5℃ to + 60℃ Humidity = upto 95 % rh.	Temperature = -5℃ to + 60℃ Humidity = upto 95 % rh.	Temperature = -5℃ to + 60℃ Humidity = upto 95 % rh.
18.	**Programming mode for [BY FRONT PUSH BUTTON]**	Test facility, Auto/ Manual Reset	NA	Auto/ Manual reset Failsafe/ Non Failsafe selection

WARRANTY - AGAINST ALL MANUFACTURING DEFECTS FOR 18 MONTHS FROM DATE OF SUPPLY OR 12 MONTHS FROM INSTALLATION WHICHEVER IS EARLIER

COMPLIANCE TO STANDARDS

	TEST	IEC STD.
1.	EFT Test of System Supply	61000-4-4
2.	Surge Test of Data Bus, I/O Lines	61000-4-5
3.	ESD Test (Contact Discharge)	61000-4-2
	ESD Teast (Air Discharge)	61000-4-2
4.	H.V. Test (Dielectric Test)	60255-5
5.	Insulation Resistance Test	60255-5
6.	Dry Heat Test	60068-2-2
7.	Damp Heat test (Steady State)	60068-2-30
8.	Damp Heat test (cyclic test)	60068-2-78

PROGRAMMING MODE SETTING

TABLE 1

PRESS PRG./ RST P.B. FOR	LED STATUS L1-LED	L2-LED	L3-LED	MODE
	●	○	○	Run Mode
≥ 8 SEC	✡	✡	✡	Program Mode
≤ 4 SEC	●	●	●	Test Facility
WAIT3 SEC	○	○	○	Exit Test Mode.
≥ 4 SEC	✡	○	○	Auto / manual Reset selection
≤ 4 SEC	●/○	○	○	● Auto Reset / ○ Manual Reset
≥ 4 SEC	○	✡	○	Fail Safe/ Non Fail Safe selection
≤ 4 SEC	○	●/○	○	● Fail Safe / ○ Non Fail Safe
≥ 4 SEC	○	○	✡	Common or Separate Relay selection
≤ 4 SEC	○	○	●/○	● Relay 1,Relay 2 FOR UV & OV ○ Relay1 for UV & Relay2 for OV
≥ 4 SEC	✡	○	○	MODE setting Cycle repeat.
IF P. B. IS NOT PRESSED FOR>10 SEC	✡	✡	✡	AUTO EXIT program mode after flashing led for 3 sec.

● LED ON ○ LED OFF ✡ LED FLASHING

NOTE:- 1) BY PRESSING P. B. CONTINUOUSLY ENTER IN DESIRED MODE, SKIPPING IN BETWEEN MODES.
2) PROGRAMMING MODE IS NOT APPLICABLE FOR S2 VMR2 MODEL.
3) TABLE 1 ILLUSTRATES PROGRAMMING MODE FUNCTIONS OF EACH MODEL.
4) TABLE 2 GIVES LED IDENTIFICATION OF EACH PRODUCT.
5) L3 IS NOT APPLICABLE FOR 2CO.

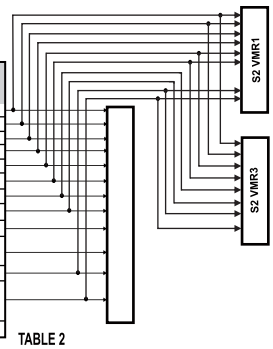
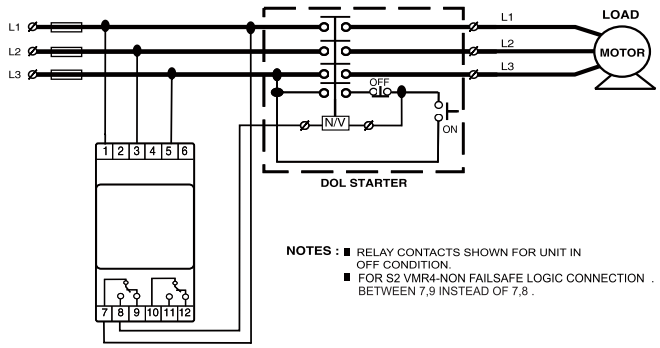


TABLE 2

PRODUCT	LED STATUS L1-LED	L2-LED	L3-LED
S2 VMR1	ON	UB/RP	-
S2 VMR2	ON	UB/RP	UV/OV
S2 VMR3	ON	UB/RP	UV/OV

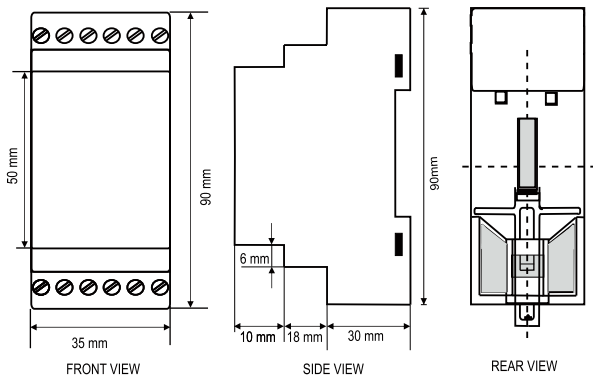
ELECTRICAL CONNECTION IN POWER & CONTROL WIRING FOR S2 VMR1 TO S2 VMR3

Fig. 1



NOTES :
- RELAY CONTACTS SHOWN FOR UNIT IN OFF CONDITION.
- FOR S2 VMR4-NON FAILSAFE LOGIC CONNECTION . BETWEEN 7,9 INSTEAD OF 7,8 .

ENCLOSURE DIMENSIONS



Instructions for Screw Gun t orque adjustment –
- Torque should be 1 Nm max.
- Max 2.5 sq. mm size wire can be used.

S2 VMR3 Video Link: https://youtu.be/aDyqvPTO7K8

WEEE (Waste Electrical & Electronic Equipment) Regulations: After end of equipment life, recycle or disposal needs to ne done as per guidelines or handover it to Ewaste processing authorized agencies. For more details contact us.

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